

## CLAIMS

1. A system for assisting regeneration of a storage/release NOx trap integrated in an exhaust line (5) of a motor vehicle diesel engine (4), the system  
5 being characterized in that it comprises gas admission means for admitting gas into the engine, means for injecting fuel (11) into the cylinders thereof in the form of at least pilot and main injections, and means for controlling (12) said gas admission and/or fuel injection  
10 means for periodically switching the engine (4) between a lean mixture standard operating mode in which NOx is stored in the trap (6) and a rich mixture regeneration operating mode, with at least two pilot injections (1, 2) and one main injection (3), in which NOx is released from  
15 the trap (6) and the trap is then regenerated.

2. A system according to claim 1, characterized in that the control means (12) are adapted to control the gas admission means to reduce the quantity of gas admitted  
20 into the engine (4) when said engine is in its regeneration mode of operation.

3. A system according to claim 1 or claim 2, characterized in that the control means (12) are adapted  
25 to control the gas admission means and/or the fuel injection means (11) in accordance with the standard and regeneration modes of operation for engine loads below a predetermined threshold value.

30 4. A system according to claim 3, characterized in that the predetermined load threshold value is defined by a brake mean effective pressure (bmep) of approximately 3 bars.

35 5. A system according to any preceding claim, characterized in that the engine (4) is associated with exhaust gas recirculation means (9) for recirculating

exhaust gas to its inlet, and the control means (12) are adapted to regulate the operation of the recirculation means (9) during operation of the engine with a rich mixture.

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6. A system according to any preceding claim, characterized in that the two pilot injections (1, 2) are triggered in a crankshaft angle range from approximately 50° to approximately 5° ahead of the top dead centre point of the cylinder concerned and the main injection (3) is triggered in an undercalibrated range up to a crankshaft angle of approximately 35° after the top dead centre point.

15 7. A system according to any preceding claim, characterized in that the control means (12) are adapted to control the gas admission means and/or the injection means (11) to operate the engine (4) with a lean mixture for approximately 60 seconds and a rich mixture for  
20 approximately 2 seconds.